## Claims

1. An antenna apparatus characterized by comprising:

a reflector antenna part which receives a linear polarization signal from a satellite at a time of reception and transmits a linear polarization signal to the satellite at a time of transmission;

an orthomode transducer which divides the linear polarization signal received by the reflector antenna part into two-channel polarized signals orthogonal to each other at the time of reception, and combines two-channel polarized signals orthogonal to each other to convert them into the linear polarization signal at the time of transmission;

a variable power divider which includes a first 90° phase combiner, a second 90° phase combiner, and a phase-amplitude adjustment block provided with variable phase shifters and variable attenuators respectively corresponding to the two-channel polarized signals, adjusts, at the time of reception, phases and amplitudes of the two-channel polarization signals divided by the orthomode transducer and orthogonal to each other and outputs them as a V polarization and an H polarization, and adjusts, at the time of transmission, phases and amplitudes of the inputted two-channel polarized signals of a V polarization and an H polarization and inputs the polarized signals orthogonal to each other to the orthomode transducer;

an antenna control unit which sets phase amounts of the variable phase shifters provided in the phase-amplitude adjustment block and corresponding to the two-channel polarized signals and attenuation amounts of the variable attenuators to desired values; and

a phase shifter and an attenuator which are provided on at least one of two-channel signal lines between the orthomode transducer and the first 90° phase combiner, and equalizes amplitudes and phases of the two-channel polarized signals.

2. An antenna apparatus according to claim 1, characterized in that the antenna control unit includes a correction table storing an amplitude difference and a phase difference occurring on the two-channel signal lines between the orthomode transducer and the first 90° phase combiner, and controls the variable phase shifters and the variable attenuators in the phase-amplitude adjustment block on the basis of the amplitude difference and the phase difference stored in the correction table.

3. An antenna apparatus according to claim 1, characterized in that the antenna control unit includes a three-axis gyro, and in a period when data of a position and tilt of an aircraft from an IRU is delayed, the antenna control unit uses data of the position and tilt of the aircraft acquired from the three-axis gyro to calculate a necessary polarization plane angle, and performs setting and control of the variable

phase shifters and the variable attenuators in the phase-amplitude adjustment block.

4. An antenna apparatus according to claim 1, further comprising a wave detector for detecting the two-channel signals outputted to a Vertical polarization port and an Horizontal polarization port, and characterized in that the antenna control unit controls a first and a second variable phase shifters and a first and a second variable attenuators in the phase-amplitude adjustment block so that a difference between the two-channel signals outputted to the Vertical polarization port and the Horizontal polarization port becomes maximum, and performs setting and control of a polarization plane angle.

5. An antenna apparatus according to claim 1, further comprising a first and a second DIVs for further dividing the two-channel polarized signals into two channels, respectively, and characterized in that

the phase-amplitude adjustment block includes the first variable phase shifter and the first variable attenuator on one of the signal channels divided by the first DIV, and the second variable phase shifter and the second variable attenuator on one of the signal channels divided by the second DIV, and

the antenna control unit sets phase amounts of the respective variable phase shifters of the phase-amplitude adjustment block or attenuation amounts of the respective variable attenuators to desired values.

6. An antenna apparatus according to claim 1, characterized in that the antenna control unit captures information of speed and acceleration of the antenna, and sets a polarization plane angle in consideration of a time delay required to acquire data of a position and tilt of an aircraft from an IRU.

7. An antenna apparatus according to claim 1, characterized in that the antenna control unit corrects a polarization plane angle by an amount of difference between an antenna angle obtained on the basis of data of a position and tilt of an aircraft from an IRU and an antenna actual angle.